

**REMARKS**

Claims 1, 4, 6, 9, 11, 17, 24, 28 and 31-33 were rejected based on 35 U.S.C. §103(a) as being unpatentable over Sindhushayana, U.S. Patent Application No. 2004/0181744 ("the '744 Patent Application") and in further view of Yellin, U.S. Patent No. 6,603,823 ("the '823 Patent"). In addition, claims 3, 5, 10, 15, 16, 21, 23, 27 and 30 were objected to, the Examiner indicating that the subject matter of these claims would be allowable if these claims were written in independent form. Applicants thank the Examiner for indicating that the subject matter of these claims is allowable.

**The Section 103 Rejections**

Applicants respectfully disagree and traverse the Section 103 rejections mentioned briefly above for at least the following reasons.

Applicants respectfully submit that the combination of the '744 Patent Application and '823 Patent does not render obvious the claims of the present invention. As the Office Action acknowledges, the '744 Patent Application does not disclose the use of an index into a look-up table to retrieve a scale factor, where the index is a function of a noise variance of received pilot symbols. Worse yet, though the '744 Patent Application discloses the calculation of a noise variance, it is not used to identify a scale factor. It is readily apparent from a reading of the '744 Patent Application that the '744 inventors were totally unaware of the techniques provided by the present invention, that a noise variance could be used to identify a scale factor, etc.. Again, as indicated

in Applicants' previous responses, the '744 Patent Application is another example of complicated and complex techniques for calculating a log-likelihood ratio (LLR) as compared to the simplified techniques provided by the present invention which makes use of a noise variance. In this respect, the '744 Patent Application's total ignorance of the use of a noise variance to generate an LLR is evidence that the '744 Patent Application actually teaches away from the present invention.

Nor can it be said that the addition of the '823 Patent overcomes the deficiencies of the '744 Patent Application. As indicated above, the '744 Patent Application already indicates the calculation of a noise variance (see page 12, paragraphs 135 and 136). As it relates to the patentability of the instant claims, the '823 Patent's disclosure appears to be cumulative of the disclosure of the '744 Patent Application. Said another way, the fact that the '823 Patent also discloses the estimation of a noise variance is no indication that the inventors of the '744 Patent Application or '823 Patent realized that the computation of an LLR could be simplified by using the noise variance of received pilot symbols, as in the claims of the present invention. In fact, their silence is an indication that they were totally unaware of such a possibility.

Applicants also note that the Examiner has not provided a motivation, teaching or suggestion that would cause one of ordinary skill in the art to combine the teachings of the '744 Patent Application with the '823 Patent. After acknowledging that the '744 Patent Application does not disclose or suggest an index into a look-up table which is used in retrieving a scale factor

that is a function of a noise variance of received pilot symbols as in the claimed inventions, the Examiner nonetheless proceeds to combine the '744 Patent Application with the '823 Patent.

In doing so, the Examiner takes the position that it would have been obvious to one of ordinary skill in the art at the time of the filing of Applicants' invention to modify the '744 Patent Application to use an index into a look-up table to retrieve a scale factor that is a function of a noise variance of a received pilot symbol. Instead of providing a motivation to combine the '744 Patent Application with the '823 Patent, the Examiner has simply quoted language from Applicants' claims. As far as Applicants can tell, the Examiner has merely concluded that because the '744 Patent Application and '823 Patent involve QAM modulation, it is proper to combine the teachings of the '744 Patent Application and the '823 Patent to render obvious the claims of the present invention. Applicants respectfully submit that this is incorrect.

In fact, Applicants respectfully submit that one of ordinary skill in the art would not be motivated to combine the '744 Patent Application with the '823 Patent because to do so would either require one or both of these references to change their principle of operation or render one or both of these references unsatisfactory for their intended purpose.

The '744 Patent Application specifically discloses the use of turbo encoded symbols, whereas the '823 Patent is completely silent as to the use of turbo encoded symbols. Therefore, either the '823 Patent would have to be modified to work with turbo encoded symbols, or the '744 Patent Application

would have to be modified to work with non-turbo encoded symbols in order to be combined. Such a combination would destroy the intended purpose of one or both of the references and require one or both of the references to change their principle of operation. Accordingly, Applicants respectfully submit that the combination of the '744 Patent Application with the '823 Patent is impermissible.

Accordingly, Applicants respectfully submit that the claims of the present invention would not have been obvious to one of ordinary skill in the art at the time the application was filed upon reading the disclosures of the '744 Patent Application and the '823 Patent.

Applicants respectfully request withdrawal of the rejections and allowance of claims 1, 4, 6, 9, 11, 17, 24, 28 and 31-33.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant(s) hereby petition(s) for a one (1) month extension of time for filing a reply to the outstanding Office Action and submit the required \$120.00 extension fee herewith.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John E. Curtin at the telephone number of the undersigned below.

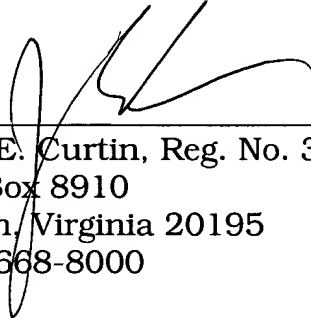
In the event this Response does not place the present application in condition for allowance, applicant requests the Examiner to contact the undersigned at (703) 668-8000 to schedule a personal interview.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY, & PIERCE, P.L.C.

By



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